



## Spectral characteristics of stably stratified turbulence

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Based upon a quasi-gaussian approximation and a self-consistent procedure of small-scale modes elimination, we have developed a spectral theory of stably stratified turbulence. This theory provides a full account of the anisotropy of the flow field caused by stable stratification and elaborates some issues related to turbulence - internal wave interaction. The theory yields analytical expressions for eddy viscosities, eddy diffusivities, and various 1D spectra. We have further advanced the spectral theory and derived the Corrsin - Obukhov spectrum analytically in the limit of weak stratification. For stronger stratification (smaller Froude numbers), the theory predicts the spectrum  $E(k) \propto N^2 k_z^{-3}$ , where the coefficient of proportionality is about 0.2. The theoretical spectrum is in good agreement with large eddy simulations and the horizontal spectrum of the vertical shear measured in the upper ocean.